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EXAMINER

ROBERTS, BRIAN S

ART UNIT PAPER NUMBER

2662

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/047,057	Applicant(s) CHANG ET AL.	
	Examiner Brian Roberts	Art Unit 2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 January 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-49 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

- Claims 1-49 have been examined.

Claim Objections

1. Claims 44, 45 and 48 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claims 44, 45, and 48 are the same as claims 21, 22, and 25. Furthermore claims 23 and 24 are the same as 46 and 47.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 17, 19, 40, and 42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- In reference to claim 17, 19, 40, and 42

The phrase "receive buffer handle" is unclear. A receive buffer has not been introduced in the parent claims and the specification does not define what is a "receive buffer handle".

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claim 1-2, and 49 rejected under 35 U.S.C. 102(e) as being anticipated by Bordonaro et al. (US 6798775)

- In reference to claim 1

In Figure 1, Bordonaro et al. teaches a system and method that includes:

- A receiving DLSw switch receives a packet and examines the incoming packet to determine whether it is a VLAN packet (type) (column 7 lines 6-16)
- Forwarding the packet with the VLAN identifier field (virtual network identifier) and priority tag to a DLSw switch

- In reference to claim 2

In Figure 4, Bordonaro et al. teaches a system and method that includes:

- Utilizing a control message (400) to establish a circuit connection between two DLSw switches that includes state variables to identify in each DLSw switch a VLAN ID, a priority tag, and CFI tag. (column 6 lines 4-25)

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- A DLSw switch utilizes the state variable information to identify the header field (control information) of incoming data packets from another DLSw switch (column 6 lines 26-62)

- In reference to claim 49

In Figure 13, Bordonaro et al. teaches a network switch containing:

- A Packet Format Circuit block (13012) that interprets data in fields of packets and contains the buffers (13013) used to temporarily store packets as they are received and before the packet is transmitted onto an output port. (column 59-64)
- Processor (13014) performs all of the router functions requiring a processor including deciding which port a received packet should be routed to, responding to ARP Explorer packets, executing spanning tree protocol (column 12 lines 64-67)
- A unidirectional input port (13004) and a unidirectional output port (13002)
- A bidirectional port (13006)

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 3, 21 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bordonaro et al. (US 6798775)

- In reference to claim 3 and 26

Bordonaro et al. teaches a system and method that covers substantially all limitations of the parent claims. In Figure 11, Bordonaro et al. further teaches a switching system containing DLSw1 (source device) and DLSw2 (destination device)

Bordonaro et al. does not explicitly teach both the source and destination devices implanted as distributed switches or the destination device implemented as a switch fabric and the source device implemented as a distributed switch.

Utilizing a distributive switch or a switch fabric is a design expedient.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the system and method of Bordonaro et al. to include implementing DLSw1 (source device) and a DLSw2 (destination device) as distributed switches or DLSw2 as a switch fabric because a network containing either types of switching arrangements could be utilized to switch the packets from the source to the destination.

- In reference to claim 21

Bordonaro et al. teaches a system and method that covers substantially all limitations of the parent claim. Bordonaro et al. further teaches utilizing a MAC destination address field (multicast identifier field) of a packet to identify whether the packet is a unicast or multicast packet. (column 1 lines 52-60)

8. Claims 4-7, 12, 16-20, 27-30, 35, 39-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bordonaro et al. (US 6798775) in view of Chen et al. (US 6487170).

- In reference to claim 4 and 27

Bordonaro et al. teaches a system and method that covers substantially all limitations of the parent claims. In Figure 6, Bordonaro et al. further teaches establishing a TCP/IP connection (652) between two DLSw devices for forwarding outgoing packets to a destination DLSw. Bordonaro et al. further teaches the transmitting DLSw transmitting a control message (source control message) to a receiving DLSw to establish a connection for transmitting data packet.

Bordonaro et al. does not explicitly teach the destination device sending a destination control message from the destination device to the source device.

In Figure 5, Chen et al. teaches a method of utilizing control packet for a unicast session between a sender and a receiver. The control packets contain a packet type field that indicate whether the packet contains a REQUEST, ACCEPT or REJECT message. The control packets are utilized to establish a connection between a sender and a receiver in a network containing a plurality of switching devices.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the system and method of Bordonaro et al. to include the destination device transmitting a ACCEPT packet to the source device after the destination device receives the control message because it allows the source device to

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receive confirmation that a connection has been established before the source device transmits data packets.

- In reference to claim 5, 16, 28, and 39

Bordonaro et al. teaches a system and method that covers substantially all limitations of the parent claims.

Bordonaro et al. does not explicitly teach that the step of providing a handshake protocol is in response to receiving a unicast Ethernet packet.

Bordonaro et al. teaches a vlan for transmitting unicast packets including Ethernet packets where the MAC destination address field of the unicast packet is addressed to a specific computer. (column 1 lines 52-60)

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the system and method of Bordonaro et al. to include establishing a connection between the two DLSw devices in response to the reception of a unicast packet because it would allow the packets to be transmitted over the network and to the destination as specified in the MAC destination address field.

- In reference to claim 6, 7, 29, and 30

The combination of Bordonaro et al. and Chen et al. teaches a system and method that covers substantially all limitations of the parent claims.

The combination of Bordonaro et al. and Chen et al. does not explicitly teach enqueueing the source control message in a transmit queue of the destination device or

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transmitting a destination control message in response to determining when the source control message is at a head of line position in the transmit queue and the destination device is ready to transmit the data frame or.

Bordonaro et al. teaches establishing a connection prior to transmitting data frames between the two DLSw devices. In Figure 13, Bordonaro et al. teaches a packet format circuit block (13012) that contains the buffers (13013) used to temporarily store packets as they are received and before the packet is transmitted onto an output port.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the system and method of the combination of Bordonaro et al. and Chen et al. to include enqueueing the source control message in the buffers (13013) of the DLSw and transmitting a destination control message in response to determining when the source control message is at a head of line position the buffer and the destination device is ready to transmit the data frame because it allows a connection to be established between the DLSws and ensures that the data packets will be successfully transmitted across the connection.

- In reference to claim 12 and 35

Bordonaro et al. teaches a system and method that covers substantially all limitations of the parent claims. Bordonaro et al. further teaches transmitting a control (scheduling request) message to establish a connection between the source device and the destination device.

Bordonaro et al. does not explicitly teach that the destination control message is a data request message.

In Figure 5, Chen et al. teaches a method of utilizing control packets for a unicast session between a sender and a receiver. The control packets contain a packet type field that indicate whether the packet contains a REQUEST, ACCEPT or REJECT message. The control packets are utilized to establish a connection between a sender and a receiver in a network containing a plurality of switching devices.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the system and method of Bordonaro et al. to include sending a data request message as taught by Chen et al. to indicate that a connection has been established and the destination device is ready to receive data packets from source device.

- In reference to claim 18, 20, 41, 43, and 17,19, 40, 42 as best understood Bordonaro et al. teaches a system and method that covers substantially all limitations of the parent claim. Bordonaro et al. further teaches utilizing control packets containing a frame identifier to establish a connection between two DLSw.

Bordonaro et al. does not explicitly teach control packets with the frame identifiers utilizing data request messages and data reject messages for establishing a connection between the source and destination devices.

In Figure 5, Chen et al. teaches a method of utilizing control packet for a unicast session between a sender and a receiver. The control packets contain a packet type

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field that that indicate whether the packet contains a REQUEST, ACCEPT or REJECT message. The control packets are utilized to establish a connection between a sender and a receiver in a network containing a plurality of switching devices.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the system and method of Bordonaro et al. to include utilizing control packets containing REQUEST, ACCEPT or REJECT messages as taught by Chen et al. because it allows the source device to request via the control packets a connection with the destination device for the transmission of data packets and allows the destination device to notify the source device whether the connection request has been accepted or rejected.

9. Claims 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bordonaro et al. (US 6798775) in view of Chen et al. (US 6487170), as applied to the parent claims, and further in view of Calvignac et al. (US 6714562)

- In reference to claim 8-11

The combination of Bordonaro et al. and Chen et al. teaches a system and method that covers substantially all limitations of the parent claims. Bordonaro et al.

The combination of Bordonaro et al. and Chen et al. does not explicitly teach segmenting a data frame into a plurality of smaller frame segments if the data frame exceeds a predetermined size and then forwarding the plurality of segments to the destination device where the segments are reassembled into the data frame. Bordonaro

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et al. further does not explicitly teach associating a smaller frame segment with a start frame or a continuation frame.

Calvignac et al. teaches a method of segmenting a variable length data frame into a plurality of fixed length cells. Each cell contains a cell type field that indicates the type of the cell including: a start of a new frame type or a continuation of a frame type. The segmented variable length frame is reassembled at the destination into the original variable length data frame. (abstract)

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the system and method of the combination of Bordonaro et al. and Chen et al. to include segmenting a data frame into a plurality of smaller frame segments if the data frame exceeds a predetermined size, forwarding the plurality of segments to the destination device where the segments are reassembled into the data frame, and associating a smaller frame segment with a start frame or a continuation frame as taught by Calvignac et al. because it allows variable length data frames that exceed a predetermined cell size to be transported from a source to a destination such as in the case where an ATM network connects the source to the destination.

10. Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bordonaro et al. (US 6798775) in view of Chen et al. (US 6487170), as applied to the parent claims, and further in view of Bare (US 5920699).

- In reference to claim 13-15

The combination of Bordonaro et al. and Chen et al. teaches a system and method that covers substantially all limitations of the parent claim.

The combination of Bordonaro et al. and Chen et al. does not explicitly teach a look-up table in the source device containing a mapping of a MAC addresses to a device identifier and an outgoing port identifier.

In Figure 1, Bare teaches a table in a switch to look up the MAC addresses associated with devices so that unicast packets can be routed to the correct output ports of the switch and to the destination. (abstract)

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the system and method of the combination of Bordonaro et al. and Chen et al. to include a look-up table in the source device containing a mapping of a MAC addresses to a device identifier and an outgoing port identifier as taught by Bare because it allows the switch to forward the data frames to the correct address.

11. Claims 22-25, 31-34, and 44-48 rejected under 35 U.S.C. 103(a) as being unpatentable over Bordonaro et al. (US 6798775) in view of Calvignac et al. (US 6714562)

- In reference to claims 22-25, 31-34, and 45-48

Bordonaro et al. teaches a system and method that covers substantially all limitations of the parent claims.

Bordonaro et al. does not explicitly teach segmenting a data frame into a plurality of smaller frame segments if the data frame exceeds a predetermined size and then

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forwarding the plurality of segments to the destination device where the segments are reassembled into the data frame. Bordonaro et al. further does not explicitly teach associating a smaller frame segment with a start frame or a continuation frame.

Calvignac et al. teaches a method of segmenting a variable length data frame into a plurality of fixed length cells. Each cell contains a cell type field that indicates the type of the cell including: a start of a new frame type or a continuation of a frame type. The segmented variable length frame is reassembled at the destination into the original variable length data frame. (abstract)

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the system and method of Bordonaro et al. to include segmenting a data frame into a plurality of smaller frame segments if the data frame exceeds a predetermined size, forwarding the plurality of segments to the destination device where the segments are reassembled into the data frame, and associating a smaller frame segment with a start frame or a continuation frame as taught by Calvignac et al. because it allows variable length data frames that exceed a predetermined cell size to be transported from a source to a destination such as in the case where an ATM network connects the source to the destination.

- In reference to claim 44

The combination of Bordonaro et al. and Calvignac et al. teaches a system and method that covers substantially all limitations of the parent claim. Bordonaro et al. further teaches utilizing a MAC destination address field (multicast identifier field) of a

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packet to identify whether the packet is a unicast or multicast packet. (column 1 lines 52-60)

12. Claims 36-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bordonaro et al. (US 6798775) in view of Bare (US 5920699).

- In reference to claim 36-38

Bordonaro et al. teaches a system and method that covers substantially all limitations of the parent claim.

Bordonaro et al. does not explicitly teach a look-up table in the source device containing a mapping of a MAC addresses to a device identifier and an outgoing port identifier.

In Figure 1, Bare teaches a table in a switch to look up the MAC addresses associated with devices so that unicast packets can be routed to the correct output ports of the switch and to the destination. (abstract)

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the system and method of Bordonaro et al. to include a look-up table in the source device containing a mapping of a MAC addresses to a device identifier and an outgoing port identifier as taught by Bare because it allows the switch to forward the data frames to the correct address.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure are:

- Kerstein (US 6249521) teaches a network switch configured to switch packets and utilizes an address table to generate frame forwarding information.
- Sampath et al. (US 2002/0009081) teaches a gigabit switch with frame forwarding and address learning.
- Pegrum et al. (US 2002/0080720) teaches a method and apparatus for routing data traffic across a multicast-capable fabric.
- Chiang (US 6445709) teaches a method and apparatus for finding a match entry using receive port number embedded in the port vector.
- Suzuki et al. (US 5892912) teaches a method of managing virtual networks using a virtual network identifier.
- Gleeson et al. (US 5959989) teaches a system for efficient multicast distribution in a virtual local area network.
- Huang et al. (US 6041358) teaches a method for maintaining virtual local area networks with mobile terminals in an atm network.
- Kerstein (US 6111874) teaches a shared address table with source and destination two-pass algorithm.
- Chiang et al. (US 6529503) teaches an apparatus and method for storing header information in a network switch.


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14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Roberts whose telephone number is (571) 272-3095. The examiner can normally be reached on M-F 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (571) 272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BSR
10/25/2005



JOHN PEZZLO
PRIMARY EXAMINER